Kim, V. A.

KIM, V.A.

Porphyritic rocks of Zyryanovsk District in Rudnyy Altai and their relation to mineralization. Vest. AN Kazakh. SSR 13 no.12:70-74 D '57. (MIRA 11:1)

(Zyryanovsk District--Porphyrites)

BINDER, Mendel' Abramovich; KIM, Vladimir Aleksandrovich; KOROTOVSKIY, M.P., red.; IZMAYLOV, A.O.; ALFEROVA, P.F., tekhn.red.

[Problems concerning the administration of agriculture by local soviets of workers' deputies; from the work experience of local soviets of workers' deputies in the northern provinces of Kazakhstan] Voprosy deiatel'nosti mestnykh Sovetov deputatov trudiashchikhsia po rukovodstvu sel'skim khoziaistvom; iz opyta raboty mestnykh Sovetov deputatov trudiashchikhsia severnykh oblastei Kazakhstana. Alma-Ata, Izd-vo Akad.nauk Kazakhskoi SSR, 1959. 165 p. (MIRA 14:1)

(Kazakhstan--Agricultural administration) (Soviets)

KIM, V.A.

Metamorphism of sandstones in Dzhezkazgan. Izv. AN Kazakh. SSR. Ser. geol. no.2:106-109 '61. (MIRA 14:7)
(Dzhezkazgan District--Sandstone)

KIM, V.A.; KAIPOV, A.D.; GEKHT, I.I.

Pyrophyllite and rocks containing pyrophyllite from the Akbastau pyrite-complex metal deposit. Trudy Inst.geol.nauk AN Kazakh.SSR 7:266-272 '63. (MIRA 17:9)

TUROVSKIY, S.D.; KIM, V.F.

Method and significance of mineralogical survey. Izv. AN Kir. SSR. Ser. est. i tekh. nauk 2 no.9:85-106 '60.
(MIRA 14:7)

(Kirghizistan--Mineralogy)

KIM, Viktor Innokent'yevich; ZAFRAN, Meylokh Iosifovich; KAZAKOVA, L.A., red.; ASTAKHOVA, I.V., tekhn. red.

[Amending the statutes of collective farms; practices of collective farms in Kazakhstan] Praktika izmeneniia ustavov kolkhozov; iz opyta raboty kolkhozov Kazakhskoi SSR. Moskva, Gos. izd-vo iurid. lit-ry, 1958. 54 p. (MIRA 11:9)
(Kazakhstan--Collective farms)

KIM, V.Kh. (Moskva)

Morphology of induced skin tumors in mice. Arkh. pat. 27 no.10:54-60 '65. (MIRA 18:10)

1. Laboratoriya luchevykh faktorov kantserogeneza (zav. - prof. M.V.Svyatukhin) otdela po izucheniyu kantserogennykh agentov (zav. - deystvitel'nyy chlen AMN SSSR prof. L.M.Shabad) Instituta eksperimental'noy i klinicheskoy onkologii (direktor - deystvitel'nyy chlen AMN SSSR prof. N.N.Blokhin) AMN SSSR.

KIM, V.Kh.

Effect of beta-radiation on the development of skin cancer in mice induced by 9,10-dimethyl-1,2-benanthracene. Vest. AMN SSSR 19 no.11:36-41 '64. (MIRA 18:3)

1. Institut eksperimental'noy i klinicheskoy onkologii AMN SSSR, Moskva.

ADILKHODZHAYEV, A.A., kand.tekhn.nauk; IKRAMOV, S., kand.tekhn.nauk; KIM, V.M., inzh.

Construction elements for large-panel houses to be built in seimic regions. Bet. i zhel.-bet. no.10:470-472 O '60. (MIRA 13:10)

(Precast concrete construction)
(Earthquakes and building)

GONCHAROV, Yu.M.; KIM, V.M.; SNEZHKO, O.V.; SHISHKANOV, G.V.

Classification of methods of construction in areas of widespread permafrost. Osn., fund.i mekh.grun. 4 no.2:26 '62.

(MIRA 15:8)

(Frozen ground) (Foundations)

KIM, V.N.

Building passageways under railroad tracks. Transp.stroi. 11 no.4: 21-23 Ap '61. (MIRA 14:5)

1. Nachal'nik SU-6 tresta Mostransstroy
(Moscow—Underpasses)

KIM, V.P.

Using machinery in levelling embankments in lowlands. Transp. stroi. 10 no. 12:11-13 D '60. (MIRA 13:12)

1. Glavnyy inzhener mekhkolonny No. 18 tresta Sredazstroymekhanizatsiya.

(Railroads--Earthwork)

KIM, V. S.

"Pressure of Grain in Silos." Sub 28 Nov 51, Moscow Technological Inst of the Food Industry

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

KIM, V. S., kandidat tekhnicheskikh nauk.

[redacted]

Determining the pressure of grain in storage bins. Muk.-elev.prom. 21 no.1:10-12 Ja '55. (MLRA 8:5)

1. Tsentral'naya nauchno-issledovatel'skaya laboratoriya Glavzagotstroya.
(Grain--Storage) (Granaries)

KIM, V.S., kand.tekhn.nauk, starshiy nauchnyy sotrudnik

An error in V.I.Litvinenko's article. Prom. stroi. 41 no.2:40 F '64. (MIRA 17:3)

1. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu Akademii stroitel'stva i arkhitektury SSSR.

KIM, V.S.

Manufacture of large objects from waste paper impregnated with synthetic resins. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst. nauch. i tekh.inform. 16 no.10:16-20 '63. (MIRA 16:11)

KIM, V.S. (Sverdlovsk)

Estimation of the deviation of solutions of iterative systems.
Izv. vys. ucheb. zav.; mat no.4:67-78 '63. (MIRA 16:10)

KIN, V.S.

Manufacture of goods from waste paper. Plast.massy no.11:72-73 '60.
(MIRA 13:12)

(Waste paper)

KIM, V.S.

Press molds with the use of vacuum and compressed air. Plast.massy no.9:66-67 '61. (MIRA 15:1)

(Plastics--Molding)

KIM, V.S.; LEVIN, A.N.

Design of extrusion dies for flat sheets with resistance equal to that of the collector. Plast.massy no.4:50-54 '64. (MIRA 17:4)

ACCESSION NR: AR4039845 S/0044/64/000/004/B118/B118

SOURCE: Ref. zh. Matematika, Abs. 4B522

AUTHOR: Kim, V. S.

TITLE: On conditions for the existence of a periodic solution for an iteration equation in Banach space.

CITED SOURCE: Matem. zap. Ural'skiy un-t, v. 4, no. 2, 1963, 60-68

TOPIC TAGS: iteration equation, Banach space, periodic solution, asymptotic stable

TRANSLATION: In a Banach space E, one considers the equation

$$x_{m+1} = f(x(m), m) + \varphi(m), \quad (1)$$

where x(m), φ (m) are functions of an integer, with values in E, and f(x,m) is an operator on space E. It is assumed that f(x,m) and the function φ (m) are periodic, of period ω . Let there be given an arbitrary periodic function $x = \psi(m)$, also having period ω . In order for this function to satisfy equation (1), it is necessary to choose φ (m) according to the formula

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ACCESSION NR: AR4039845

$$\varphi(m) = \psi(m+1) - f(\psi(m), m). \quad (2)$$

If relation (2) can be satisfied only approximately, then equation (1) may not posess a periodic solution. The paper gives conditions which guarantee the existence of an asymptotically stable periodic solution of equation (1), in the case where $\varphi(m)$ is found from (2) with a certain error; in addition, estimates are given for the absolute, mean, and mean-square values of the error. Ye. Barbashin

DATE ACQ: 15May64 SUB CODE: MA ENCL: 00

Card 2/2

KIM, V.S.

Conditions for the approximate realization of discrete processes. Mat. zap. Ural. mat. ob-va UrGu 4 no.2: 51-59 '64 (MIRA 17:8)

Conditions for the existence of a periodic solution to an iterative equation in Banach space. Ibid.:60-68

KIM, V.S.; LEVIN, A.N.

Studying the anisotropy of the mechanical properties of plates made from thermoplastic resins during extrusion. Plast. massy no.3:48-52 '65. (MIRA 18:6)

OGULENKO, G.G., inzh.; KIM, V.V., inzh.

Our observations, conclusions, and suggestions concerning the operation of NB-406B traction motors. Elek.i tepl.tiaga 6 no.12:22-23 D '62. (MIRA 16:2)

1. Depo Dema Kuybyshevskoy dorogi.
(Electric railway motors)

8(6), 14(6) SOV/112-59-5-8678

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 5, p 40 (USSR)

AUTHOR: Kim, V. Ya.

TITLE: Planned Firm Power of a Diversion-Type Hydroelectric Generating Station With Diurnal Regulation

PERIODICAL: Tr. In-ta energ., AN Kazakhskoy SSR, 1958, Vol 1, pp 30-41

ABSTRACT: Method for determining the design firm power of a small diversion-type station with diurnal regulation is considered. Its parallel operation with a thermal condensing power station is analyzed. Two sets of operating conditions of the hydro station are considered: (1) During the low-water period the station carries the peak load, and during the flood it operates on base load; (2) The hydro station with diurnal regulation predominantly operates as a peak station. To determine optimum station parameters, the design schemes for both sets of conditions deal with different values of the station operating capacity, different regulating reservoir capacities, and different relations

Card 1/2

Planned Firm Power of a Diversion-Type Hydroelectric Generating Station SOV/112-59-5-8678

between them. Analytical expressions of the design firm power are given. Bibliography: 6 items.

Yu. M.S.

Card 2/2

KIM, V.Ya.

Calculating the runoff regulation by means of integral curves. Izv.AN Kazakh.SSR.Ser.energ. no.1:35-37 '58. (MIRA 12:6)
(Runoff)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000722530002-0"

8(6), 14(6)

SOV/112-59-4-6678

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 42 (USSR)

AUTHOR: Kim, V. Ya.

TITLE: Plotting the Diurnal-Discharge Curves for Mountain Rivers

PERIODICAL: Tr. In-ta energ. AS Kazakhskaya SSR, 1958, Vol 1, pp 42-45

ABSTRACT: In power-economy computations, a generalized curve of diurnal discharge over a many-year period is often used; the curve is plotted by computing the recurrence of discharges for consecutive unequal intervals. To save work in plotting such a curve, the possibility is considered of using average monthly discharges instead of average diurnal. Such a substitution is possible because the optimum values of the station firm capacity usually refer to the low-water period when the runoff of a snow-glacier-fed river is very stable. Analytical expressions describing diurnal-discharge curves are also considered. Bibliography: 9 items.

Yu. M.S.

Card 1/1

VAG[illegible]OV, [illegible]; KIM, V.Ye.; PAN[illegible], [illegible].

Optimum parameters of hydroelectric power [illegible] seasonal and annual regulation of the flow. Izv. AN Kazakh. SSR. Ser. energ. no.2:47-53 '59. (MIRA [illegible])
(Hydroelectric power stations)

KIM, V. M., Cand Tech Sci -- (diss) "Rated parameters of [illegible] from hydroelectric power station with daily regulation," Alma-Ata, 1960, 17 pp (Institute of Power Engineering, AS KazSSR) (KL, 36-60, 115)

KIM, V.Ya.

Optimum parameters of a hydroelectric power station with a round-the-clock regulation. Trudy Inst. energ. AN Kazakh. SSR 2:147-150 '60.
(MIRA 15:1)

(Hydroelectric power stations)

ZAKHAROV, V.P.; KIM, V.Ja.; CHOKIN, Sh.Ch.

Methods for the practical calculation of water supply guaranteed to hydroelectric power stations. Probl. gidroenerg. i vod. khoz. no.1:10-52 '63. (MIRA 16:12)

1. Institut energetiki AN KazSSR.

ZAKHAROV, V.P.; KIM, V.Ya.

Elementary theory of infinitely bounded distributions. Probl. gidroenerg. i vod. khoz. no.1:53-72 '63.

Continuous periodicity of a hydrological process as a methodological basis for water supply calculations. Ibid.:73-100

(MIRA 16:12)

1. Institut energetiki AN KazSSR.

124-58-9-10135

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 104 (USSR)

AUTHOR: Kim, V. Yu.

TITLE: The Control of the Displacement of an Oil Bank With Due Consideration of the Influence of Faults (Upravleniye dvizheniyem kontura neftenosnosti s uchetom vliyaniya sbrosov)

PERIODICAL: Izv. Kazansk. fil. AN SSSR.Ser. fiz.-matem. i tekhn. n., 1957, Nr 11, pp 45-56

ABSTRACT: An examination of the plane motion of an incompressible liquid in a horizontal homogeneous layer of constant thickness h=1 and permeability k. The filtration obeys the linear Darcy law. At the outset a striplike seam, one edge of which is impervious, is investigated. The deposit is penetrated by chains of producing wells and injection wells, wherein the chains are parallel to the fault line. The differences in physical constants of the oil and the water are disregarded. It is assumed that at the initial time point the influence contour is parallel to the fault line (and, consequently, to the chains). Utilizing the well-known method (Salekhov, G. S., Izv. Kazansk. fil. AN SSSR. Ser fiz.-matem. i tekhn. n., 1955, Nr 6, pp 3-38; RzhMekh, 1956, Nr 8,

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124-58-9-10135

The Control of the Displacement of an Oil Bank With Due Consideration (cont.)

abstract 5308) a solution is found for the problem of the optimal mode of squeezing the oil bank (by means of well-operation control). Furthermore, the construction of the pressure funtion for the two-liquid system is performed and the plane-radial problem of the displacement control of the oil bank is investigated for the case of a circular stratum, penetrated by networks of producing wells and injection wells, wherein at the center of the stratum there is an impervious core. The problem of the contraction of the oil bank (by means of well-operation control) is solved with consideration of the different physical constants of the oil and the water. A calculation example is given. Bibliography: 7 references.

V. A. Karpychev

1. Petroleum industry--USSR 2. Geophysics--USSR 3. Liquids--Properties
4. Mathematics--Applications

Card 2/2

124-58-9-10136

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 104 (USSR)

AUTHOR: Kim, V. Yu.

TITLE: On a Problem of the Dynamic Control of an Oil Bank (Ob odnoy zadache upravleniya dvizheniyem kontura neftenosnosti)

PERIODICAL: Izv. Kazansk. fil. AN SSSR. Ser. fiz.-matem. i tekhn. n., 1957, Nr 11, pp 57-61

ABSTRACT: An investigation of the motion of a homogeneous liquid (obeying a linear filtration law) in a homogeneous horizontal layer of constant thickness. The deposit, which is imagined to be confined between rectilinear faults (with two parallel boundaries and a third perpendicular thereto) is developed by means of a line of wells which is situated to concide with the "transverse" fault. The problem is solved by means of the well-known method (Salekhov, G. S., Izv. Kazansk. fil. AN SSSR, Ser. fiz.-matem. i tekhn. n., 1955, Nr 6, pp 3-38; RzhMekh, 1956, Nr 8, abstract 5308). The case is considered in which at the initial time point the contour of the oil bank consists of a straight-line segment which is not parallel to the alignment of the wells. A graph is adduced showing the change in the yields of the wells against time; a criterion for the solvability of the problem is supplied. V. A. Karpychev

Card 1/1

1. Petroleum industry--USSR 2. Geophysics--USSR 3. Liquids--Properties 4. Mathematics--Applications

SOV/24-58-9-16/31

AUTHOR: ~~Kim, V. Yu.~~ (Bugul'ma)

TITLE: Solution of the One-dimensional Problem of the Non-steady-State Filtration of a Liquid in a Stratum of Variable Width (Resheniye odnomernoy zadachi o neustanovivsheysya filtratsii zhidkosti v plaste peremennoy moshchnosti)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 9, pp 109 - 111 (USSR)

ABSTRACT: The problem is solved for definite restictions on the function. From the solution which is obtained, the well-known results for a stratum of constant width follow. The first problem considered is that of a bed in the form of a strip filled with a liquid under pressure p_0. At some moment of time, the pressure along the length of the flow is instantaneously lowered to p_1 and remains constant thereafter. On the contour $x = 0$ the pressure remains constant at its initial value p_0. It is required to find the pressure distribution at any moment of time. In the second problem, the width varies according to a parabolic law. The initial pressure is everywhere p_0 and on the line $x = 0$ the pressure remains constant

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SOV/24-58-9-16/31

Solution of the One-dimensional Problem of the Non-steady-state Filtration of a Liquid in a Stratum of Variable Width

at p_1 . For both these problems the pressure distribution and the outflow are determined. There are 3 figures and 6 Soviet references.

SUBMITTED: February 13, 1958

Card 2/2

SOV/24-59-1-14/35

AUTHOR: Kim, ~~V.Yu., (Bugul'ma)~~

TITLE: The Problem of Unsteady Percolation of Liquid in a Stratum of Variable Thickness (K zadache o neustanovivsheysya fil'tratsii zhidkosti v plaste peremennoy moshchnosti)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, Energetika i Avtomatika, 1959, Nr 1, pp 104-107 (USSR)

ABSTRACT: The paper is a continuation of previous work (Ref 2). The thickness of the stratum is supposed to vary in accordance with a smooth curve, which may be concave, convex or a straight line from H_0 at $x = 0$ to H_1 at $x = L$, where L is the length of the stratum. The problem of percolation is then analogous to that of heat propagation in a finite bar with assigned values of temperature at the ends with heat exchange through the lateral surfaces and with the mean temperature zero. Using this analogy, the solution of the problem is obtained as a rapidly converging series and the results for a stratum of variable thickness are compared with those for

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SOV/24-59-1-14/35

The Problem of Unsteady Percolation of Liquid in a Stratum of Variable Thickness

a layer of constant thickness. There are 3 figures and 3 Soviet references.

ASSOCIATION: Tatarskiy Neftyanoy Nauchno-Issledovatel'skiy Institut (Tartar Petroleum Scientific-Research Institute)

SUBMITTED: 30th September 1958

Card 2/2

KIM, V.Yu. (Bugul'ma)

Approximate calculation of percolation under flexible conditions and with variable pressure drop. Izv.AN SSSR. Otd.tekh.nauk.Mekh.i mashinostr. no.5:200-203 S-O '60. (MIRA 13:9)

1. Tatarskiy neftyanoy nauchno-issledovatel'skiy institut.
(Percolation)

KIM, V.Yu. (Bugul'ma)

Integral method in the theory of nonstationary fluid percolation in a porous medium. Inzh.sbor. 30:126-130 '60. (MIRA 13:10)
(Percolation)

KIM, V.Yu (Khar'kov)

Approximate method of solving nonstationary problems of the theory of seepage. PMTF no.1:98-100 Ja - F '61. (MIRA 14:6)
(Soil percolation)

KIM, V.Yu. (Khar'kov)

Approximate solution of the problem of an unsteady liquid flow toward a well with a given face pressure. Izv.AN SSSR.Otd.tekh. nauk.Mekh.i mashinostr. no.5:174-177 S-O '61. (MIRA 14:9)
(Oil reservoir engineering)

KIM. V.Yu.

Approximate method of calculating the yield of a well with a given botto[redacted]essure and nonsteady state flow. Neft. khoz. 39 no. 2:41-45 F '61. (MIRA 17:2)

KIM, V.Yu.

Method for calculating the accumulated oil at a given bottom hole pressure. Neft. khoz. 40 no.5:42-45 My '62. (MIRA 15:9)

(Oil reservoir engineering)

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KIM, V.Yu. (Khar'kov)

Well interference in elastic fluid flow at given well bottom pressures. Inzh. zhur. 3 no.1:63-70 '63. (MIRA 16:10)

(Oil reservoir engineering)

L 19168-63 EWP(r)/FCS(f)/EWT(1)/EPF(n)-2/EWT(m)/BDS AFFTC/ASD/SSD Pu-4 WW
S/0170/63/006/007/0066/0069
ACCESSION NR: AP3004295

64
63

AUTHOR: Kim, V. Yu.

TITLE: Non-steady heat conductivity in a hollow cylinder at certain boundary temperature

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 6, no. 7, 1963, 66-69

TOPIC TAGS: heat conductivity, hollow cylinder, boundary temperature, heat expenditure, temperature distribution

ABSTRACT: The article studies an approximate solution of this problem by using the respective solutions for a steady regime and introducting a conditional radius of influence, which for cylindrical symmetry is determined by comparing the available precise solutions for a linear unidimensional problem and boundary conditions. For non-steady heat conductivity, temperature T(r, t) satisfies a^2 Delta T = $\frac{\partial T}{\partial t}$. The basic equation of non-steady heat conductivity is

$$\frac{a^2}{r}\frac{\partial}{\partial r}\left(r\frac{\partial T}{dr}\right)=\frac{\partial T}{\partial t}.$$

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L 17168-63

ACCESSION NR: AP3004295

where s = 0, 1 and 2, respectively, for problems with flat, cylindrical and central symmetry. Calculation of the temperature fields is based on the solution of this equation under specific initial and boundary conditions. Non-steady distribution of temperature in a cylinder is found by the formula for steady heat conductivity by replacing the external radius by the conditional radius of influence

$$(T_2 - T)(T_2 - T_1) = \ln R_{cond}(t) r^{-1} [\ln R_{cond}(t) R_1^{-1}]^{-1}$$

The accuracy of computation of the distribution of the temperature proved somewhat lower than for expenditure, the relative error being 5%. "Thus, the proposed approximate method of solving problems of non-steady heat conductivity insures a good accuracy of computation of both heat expenditure and temperature distribution in the most complicated problem with cylindrical symmetry and boundary conditions of the first kind." Original article has 15 numbered equations and one graph.

ASSOCIATION: Ukrainskiy filial VNIIGAZa, Khar'kov (Ukrainian Branch of VNIIGAZ)

SUBMITTED: 08Dec62 DATE ACQ: 08Aug63 ENCL: 00

SUB CODE: PH NO REF SOV: 004 OTHER: 000

Card 2/2

KIM, V.Z.

Perlite for buildings in the Transcarpathian region. Stroi. mat. 7 no.3:29 Mr '61. (MIRA 14:4)

1. Glavnyy inzh. stroitel'nogo tresta g. Kalush, Stanislavskoy oblasti.

(Transcarpathia—Perlite (Mineral))

L 14721-66 EWT(m)/T DJ

ACC NR: AP6004164 (N) SOURCE CODE: UR/0114/66/000/001/0015/0017

AUTHOR: Kim, Ya. A. (Engineer)

ORG: none

37

B

TITLE: Calculation of hydraulic thrust bearings for unloading of axial force

SOURCE: Energomashinostroyeniye, no. 1, 1966, 15-17

TOPIC TAGS: hydraulic device, thrust bearing, fluid bearing, turbomachinery, turbine, bearing

ABSTRACT: An approximate method for calculating the parameters of hydraulic thrust bearings for unloading of axial forces in rotating parts is presented. The flow losses and friction losses are assumed in the form

$$N_{ob} = \frac{\gamma H_r}{102} Q_p;$$

$$N_{mech} = \frac{\gamma\omega^3}{102} c_f R_2^5 (1 - \bar{r}_0^5),$$

(normal nomenclature, MKGS units), which, after a number of approximations and

Cord 1/3 UDC: 621.22.001.24

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ACC NR: AP6004164

assumptions, can be written as

$$N_{ob} = Ax^{-0.5};$$
$$N_{mech} = Bx^{-0.4}(\beta x + 1)^{1.775}.$$

Here $x = m + 1$;

$$m = \frac{\Delta p_{sh}}{\Delta p_d} = \frac{\Delta p - \Delta p_d}{\Delta p_d};$$

Δp, Δp_d, Δp_{sh} = pressure drops across whole device, in the face clearance and in the throttling clearance respectively;

$$A = 5\cdot 10^{-3}\frac{\Delta p}{\alpha} b_\partial^{1.5} r_e^{0.5}\frac{1}{\sqrt{1-\bar{r}_e}};$$

$$B = 0{,}72\cdot 10^{-3}\omega^{2.2}\nu^{-0.6} b_\partial^{1.15}\Delta p^{0.4} r_e^{2.55} r_e^{0.4}\left(1-\bar{r}_e\right)^{-0.4};$$

$$\alpha = \frac{\Delta p}{H_T};$$

$$\bar{r}_e = r_e/R_e \qquad \bar{r}_e = r_e/R_e;$$

$$R_e = r_e\sqrt{\frac{F(m+1)}{\Delta p\psi\pi r_e^2} + 1} = r_e\sqrt{\beta(m+1)+1};$$

$$\beta = \frac{F}{\Delta p\psi\pi r_e^2};$$

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ACC NR: AP6004164

O

$$\psi = \frac{(1-\varphi)(1+\bar{r}_e) + (1+2\varphi)\bar{r}_e - 3\bar{r}_e^2}{3(1-\bar{r}_e)^2};$$

F = axial load; ϕ = pressure loss coefficient at entrance to face clearance; ψ = pressure distribution coefficient on the working area of the disk; H = theoretical pump pressure; ν, γ = kinematic viscosity and specific weight of fluid. Since the sum of these two losses has a minimum as a function of m at m_0, calculations of the thrust pad parameters should proceed as follows: as a first approximation one can assume $r_e \approx r_b + (15 \div 30\ мм)$; $\bar{r}_e \approx 0,7 \div 0,75$; $\varphi \approx 0,25$; $\psi = 0,65 \div 0,63$; assuming values of b_d, ψ, ϕ, $\bar{r}_e$, and r_e (all other parameters are normally specified) and, using the last two equations, a graph is constructed to determine m_0. The rest of the parameters can then be found from previously given equations, from

$$Q_d = 2\pi r_e b_d \mu \sqrt{2g\frac{\Delta p_d}{\gamma}},$$

and from

$$\Delta p_d = \frac{\Delta p}{m+1}.$$

Orig. art. has: 13 formulas and 2 figures.

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 002

FW

Card 3/3

KIM, Ya.A., inzh.

Methods for the experimental determination of disc power losses of a centrifugal pump. Energomashinostroenie 9 no.10:45-47 O '63.
(MIRA 16:10)

KIM, E.I.

24727. KIM, EII. Obobshennaya Azdacha Gursa. Uchen. Zapiski Kazakh Gos. Un-ta Im. Kirova, T. XII, 1949. S. 9-17

SO: Letopist No. 33, 1949

KIM, YE. I.

USSR/Mathematic - Harmonic Functions Mar/Apr 52

"General Boundary Problem of a Harmonic Function,"
Ye. I. Kim, Alma-Ata

"Prik Matemat i Mekh" Vol XVI, No 2, pp 147-158

Problem was solved by various methods by F. D. Gakhov, (cf. "Izvestiya Kazanskogo Fiziko-Matematicheskogo Obshchestva" 1938, Vol X, Ser 3) by I. N. Vekua (cf. "Trudy Tbilisskogo Matematicheskogo Instituta" 1942, Vol XL) and D. I. Sherman (cf. "Iz Ak Nauk SSSR, Ser Matemat" 1946, Vol X, No 2) Kim applies method by Sherman. Analyzes cases in which problem is solvable. Received 3 Apr 51.

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KIM, E.I.

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Kim, E. I. The propagation of heat in two dimensions in an infinite inhomogeneous body. Akad. Nauk SSSR. Prikl. Mat. Meh. 17, 555–568 (1953). (Russian)

The author considers the problem of the propagation of heat in two dimensions in two plates joined along a straight line. Taking the y-axis parallel to this line, the mathematical formulation of the problem leads to the equations

$$(1)\quad \frac{\partial u}{\partial t} = a_1^2 \Delta u \text{ for } x < x_0, \quad \frac{\partial u}{\partial t} = a_2^2 \Delta u \text{ for } x > x_0$$

$$\left(\Delta \equiv \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}\right)$$

subject to the initial conditions

$$(2)\quad u(x, y, 0) = f(x, y), \quad -\infty < x, y < \infty,$$

and the boundary conditions,

$$(3)\quad \begin{aligned} u(x_0-0, y, t) &= u(x_0+0, y, t), \\ k_1 u_x(x_0-0, y, t) &= k_2 u_x(x_0+0, y, t). \end{aligned}$$

The problem is reduced to the consideration of two integral equations through the use of Green's functions. These are reduced to a single integral equation which is solved in series form. When the initial function $f(x, y)$ does not depend upon y the solution may be expressed in terms of improper integrals. *C. G. Maple* (Ames, Iowa).

Rostov State Pedagogical Inst.

10/27/54

KIM, YE. I.

USSR/Mathematics - Integral Equations 11 Jul 53

"A Class of an Integral Equation of First Kind with Singular Kernel," Ye. I. Kim, Rostov-on-Don State Pedagog Inst

DAN SSSR, Vol 91, No 2, pp 205-208

Shows the integral equation $\int_0^t \frac{d\tau}{t-\tau} \int_{-\infty}^{\infty} u(\eta,\tau)$ $\sum_{i=1}^{n} A_i(\eta,\tau).\exp[-\frac{(y-\eta)^2}{4a_i^2(t-\tau)}] \cdot d\eta d\tau = f(y,t)$ (where a_i are constants, A_i are any continuous bounded and

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integrable functions, f(y,t, a given function, and u(y,t) the unknown function) to be reducible to an integral equation of the second kind and solvable by the method of successive approximations, if $\sum_{i=1}^{n} a_i A_i (y,t) \neq 0$. Presented by Acad S. L. Sobolev 11 May 53.

Kim, Ye. I

Transactions of the Third All-union Mathematical Congress (Cont.) Moscow Jun-Jul '56, Trudy '56, V. 1, Sect. Rpts., Izdatel'stvo AN SSSR, Moscow, 1956, 237 pp.

Yegorov, V. G. (Sverdlovsk). The Stability of Solution of a System of Equations Given in a Form of Total Differentials. 52-53

Zhantykov, O. A. (Alma-Ata). On the Construction of the Integral of Partial Differential Equations of the First Order for the Equation Integrals for a Calculated Countable Set of Independent Variables. 53-54

Zagorskiy, T. Ya. (L'vov). Some Mixed Problems of Parabolic Systems. 54-55

Kim, Ye. I. (Rostov-na-Donu). On a Class of Singular Integral Equations. 55

Koshelev, A. I. (Leningrad). Boundedness of Generalized Solutions of Elliptic Equations. 56

Mention is made of Bernshteyn, S. N.

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Kim, Ye. I.

Defense of Dissertations (January - July 1957) 30-12-32/45
Section of Physical-Mathematical Sciences (Vest. Ak Nauk SSSR, 27, 12, p 108-9, 1957)

At the Institute for Mathematics imeni V. A. Steklov (Matematicheskiy institut imeni V. A. Steklova) The degree of Doctor of Physical-Mathematical Sciences was applied for by: Ye. I. Kim - On a class of singular integral equations and some tasks of heat conduction for piece-like homogeneous media (Ob odnom klasse singulyarnykh integral'nykh uravneniy i nekotorykh zadachakh teploprovodnosti dlya kusochnoodnorodnykh sred). The degree of Candidate of Physical-Mathematical Sciences was applied for by: O. M. Belotserkovskiy - The flow round the arbitrary symmetric profile with outgoing shock wave (Obtekaniye proizvol'nogo simmetrichnogo profilya s otoshedshey udarnoy volnoy). N. N. Vvedenskaya - Application of the method of the end differences for the construction of generalized solutions of nonlinear equations (Primeneniye metoda konechnykh raznostey k postroyeniyu obobshchennykh resheniy nelineynykh uravneniy). M. S. Galkin - Methods of computing eigen-oscillations in the case of approximated eigenfrequencies (Metody rascheta sobstvennykh kolebaniy v sluchaye blizkikh sobstvennykh chastot). M. M. Lavrent'yev - On Cauchy's

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KIM, Ye.I.

40-5-4/20

AUTHOR: KIM, Ye.I. (Khar'kov)

TITLE: On a Problem of Heat Exchange for Systems of Bodies (Ob odnoy zadache teploobmena sistemy tel).

PERIODICAL: Prikladnaya Mat.i Mekh.,1957,Vol.21,Nr 5,pp.624-633 (USSR)

ABSTRACT: In the present paper the problem of heat exchange between bodies is treated which are in mutual heat contact. The heat exchange of the body surfaces in contact is to take place in such a way that the temperature and the heat flow suffer discontinuous variations in the neighborhood of the contact faces. Although the one-dimensional calculation of such a heat exchange is well-known since long, no satisfactory solution for multidimensional cases of this kind has been found till now. One has tried only to find the solution for the heat potentials of a single and of a double layer by approximative solution of the corresponding integral equations. In the present article the author tries a rigorous solution. He considers the plane problem for the case that the contact contour between the bodies is a straight line.
After the explanation of the problem, which consists in the solution of the heat-conduction equation (1.1) under certain initial and boundary conditions, the author gives an integral representation of the solution. The problem is transferred

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into an integral equation the solution of which can be given.

There are no figures, no tables and 14 references, 12 of which are Slavic. The author particularly refers to the papers by D.A. Lykov [Ref.3], A.B. Datsev [Ref.4-7,12], M. Ye. Shvets [Ref.8] , S.A. Usol'tsev [Ref.9] ,Ye. M. Dobryshman [Ref.10] , G. Myunts [Ref.11] and A.N. Tikhonov.

SUBMITTED: October 5,1956

AVAILABLE: Library of Congress

KIM Ye.I.

PA - 2906

AUTHOR: KIM, E.I.

TITLE: ~~On the~~ Solution of a Class of Singular Integral Equations with a Contour Integral. (Resheniye odnogo klassa singulyarnykh integral'nykh uravneniy s konturnom integralom, Russian)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 1, pp 24 - 27 (U.S.S.R.)
Received: 5 / 1957 Reviewed: 6 / 1957

ABSTRACT: The author investigates integral equations of the type
$\Psi(s,t) = \lambda \int_0^t d\tau \int_c K_0(r^2_{pp_1}, t - \tau)\Psi(s_1,\tau)ds_1 + f(s,t) \quad (t > 0)$
Here r_{pp} denotes the distance between the points p and p_1 with the coordinates s and s_1 in an arc-coordinate system. The kernel contained in this equation is written down explicitly. The function $f(s,t)$ has a derivative with a limited variation.

The present paper shows the following points:
The integral equation written down above has no solution in the class of functions which satisfy the inequality $|\Psi(s_1,t) - \Psi(s_2,t)| \leqslant Mt^{-\sigma}|s_1 - s_2|^\alpha$ for arbitrary λ. A solution exists only in the case of $\lambda < \lambda_0$, where λ_0 is a fully determined number. Therefore the method of successive approximation cannot be applied to the above equation on account of ABEL's theorem, because this method does not furnish

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On the Solution of a Class of Singular Integral Equations with a Contour Integral.

the complete solution.

If the solution exists, it can be represented in a FOURIER series. Further, the author studies the integral equation
$\Psi_n(t) = \lambda \int_0^t 2K_n^o(t - \tau)\Psi_n(\tau) + f_n(t)$ at $K_n^{(o)}(t - \tau) = 4\sqrt{\pi}\lambda_n \int_0^\infty \varrho(z)a^3(z)\exp\left[-{}_n^2a^2(z)(t - \tau)\right]d\tau.$
The resolvent of this equation is explicitly given. An integral equation following after several steps can be solved by the method of successive approximations. This solution satisfies the inequality given above. (No illustrations)

ASSOCIATION: Polytechnical Institute Charkow.
PRESENTED BY: S.L.SOBOLEV, Member of the Academy
SUBMITTED: 4.10.1956
AVAILABLE: Library of Congress

Card 2/2

AUTHOR KIM E.I. PA - 3007

TITLE On A Certain Class of Singular Integral Equations.
(Ob odnom klasse singulyarnykh integral'nykh uravneniy,-Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957,Vol 113, Nr 2, pp 268-271 (U.S.S.R.)
Received 6/1957 Reviewed 6/1957

ABSTRACT The author investigates here the integral equation

$$u(y,t) - \lambda\int_0^t d\tau\int_{-\infty}^{+\infty} K((y-\eta)^2, t-\tau)u(\eta,\tau)d\eta = f(y,t)\text{ , where}$$

$$K((y-\eta)^2, t-\tau) = \frac{1}{(t-\tau)^{3/2}}\int_0^{\infty}\varrho(z)\left[1-\frac{(y-\eta)^2}{2a^2(z)(t-\tau)}\right]\exp\left[-\frac{(y-\eta)^2}{4a^2(z)(t-\tau)}\right]$$

$$dz,\ \varrho(z) = (z^2+a_1^2)^{-3/2}(z^2+a_1^2)^{-1/2},\ a^2(z) = a_2^2(z^2+a_1^2)/(z^2+a_2^2).$$

$f(y,t)$ denotes a given function in the interval $t > 0$, $-\infty < y < +\infty$ and $u(y,t)$ is the function required. Such singular integral equation appears when computing the thermal exchange of bodies which thermally contact with one another. For solving this integral equation the FOURIER's transformation of the generalized functions defined by the linear continuous functionals of the form $(t,\varphi) = \int_{-\infty}^{+\infty} T(x)\varphi(x)dx$ is investigated.

Then the author rearranges the above mentioned integral equation in the in the following way: $u(y,t) - \lambda\int_0^t d\tau\int_{-\infty}^{+\infty} K(\eta, t-\tau)u(n+y,\tau)d\eta = f(y,t)$.

The following equation defined in the space $T(\tilde{\Phi})$ is deduced from it:

Card 1/2 $\tilde{u}(s,t) - \lambda\int_0^t K_0(s,t-\tau)\tilde{u}(s,\tau)d\tau = \tilde{f}(s,t)$. $T(\Phi)$ here denotes the

ensity of all functions running in the interval $\Phi(s,k,k_p,z^p,z_p^p)$.

The FOURIER's transformation for $f(x)$ and Φ respectively is indicated by $\tilde{f}(x)$ and $\tilde{\Phi}(x)$ respectively. The latter equation is primarily investigated from the classical point of view, its solution is obtained by means of the operator method in a complete form. Then an existence theorem and an uniqueness theorem for the solution of the integral equation initially put down is deduced. At last the final solution of the integral equation is written down explicitly.
(Without illustration).

ASSOCIATION Polytechnical Institute, Charkov.
PRESENTED BY SOBOLEV S.L., Member of the Academy.
SUBMITTED 4.10.1956
AVAILABLE Library of Congress
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SOV/24-59-3-11/33

AUTHORS: Ivanova, L. P. and Kim, Ye. I. (Alma-Ata, Khar'kov)

TITLE: Two-Dimensional Problems of Heat and Mass Exchange in Drying Processes

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1959, Nr 3, pp 76-84 (USSR)

ABSTRACT: The equations:

$$\frac{\partial u_i}{\partial t} = \sum_{k=1}^{2} a_{ik} \Delta u_k ; \qquad \Delta = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} \qquad (i = 1, 2) \qquad (1.1)$$

where a_{ik} are constants satisfying the conditions:

$$a_{11} > 0, \quad a_{22} > 0, \quad \begin{vmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{vmatrix} > 0 \qquad (1.2)$$

are considered, and two mixed boundary value problems, connected with problems of mass and heat transfer in drying

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Two-Dimensional Problems of Heat and Mass Exchange in Drying Processes

(Ref 1) are investigated. Prudnikov (Refs 2 and 3) has discussed special cases of these problems, but his method is not applicable in the general case, and the concept of a potential, analogous to thermal potential, is introduced to deal with the equations. With the aid of the potential, a system of integral equations is established which can be solved by successive approximation. The method can be applied to three-dimensional problems for the single component case. There are 8 Soviet references.

ASSOCIATIONS: Khar'kovskiy politekhnicheskiy institut, Kazakhskiy gosudarstvennyy universitet (Khar'kov Polytechnic Institute, Kazakh State University)

SUBMITTED: March 13, 1959.

Card 2/2

16(1)

AUTHOR: Kim, Ye.I.

SOV/20-125-4-8/74

TITLE: On the Conditions for the Solvability of a Class of Integro-Differential Equations (Ob usloviyakh razreshimosti odnogo klassa integro-differentsial'nykh uravneniy)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 4, pp 723-726 (USSR)

ABSTRACT: Given the equation

$$(1)\ \psi(y,t)+\sum_{k=1}^{m} A_k\int_0^t d\tau\int_{-\infty}^{\infty}\psi_\eta^{(k)}(\eta,\tau)(t-\tau)^{\frac{k}{2}-1}\,G(y-\eta,t-\tau)\,d\eta=\varphi(y,t)$$

with $G(y-\eta,t-\tau)=\frac{1}{2a\sqrt{\pi(t-\tau)}}\exp\left[-\frac{(y-\eta)^2}{4a^2(t-\tau)}\right]$; A_k and a are constants; $\varphi(y,t)$ is a given function.
Theorem: If $\varphi(y,t)$ satisfies the inequation

$$(2)\qquad |\varphi(y)|< C_1\exp\left[C|y|^{2-\varepsilon}\right],\quad C>0,\ \varepsilon>0,$$

then in the class $T(Z_{2-\delta}^{2-\delta})$ of generalized functions there exists a unique solution of (1). $T(\Phi)$ denotes the set of all generalized

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functions in the space Φ. For Z_r^r see [Ref 2].

Theorem: Let φ and its first (m+1) derivatives with respect to y satisfy (2). Necessary and sufficient for the existence of a classical solution of (1) is the stability of all roots of the characteristic equation $\sum_{k=0}^{m} a_{m-k} x^k = 0$, where $a_0 = 1$, $a_k = \frac{A_k \Gamma(\frac{k}{2})}{a^k}$.

There are 2 Soviet references.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina (Khar'kov Polytechnical Institute imeni V.I.Lenin)

PRESENTED: January 5, 1959, by I.N.Vekua, Academician

SUBMITTED: January 1, 1959

16(1) 10

AUTHORS: Kim, Ye.I., Ivanova, L.P. SOV/20-126-6-8/67

TITLE: The Mixed Boundary Value Problem for a Certain System of Parabolic Differential Equations

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 6, pp 1183 - 1186 (USSR)

ABSTRACT: Let the system

$$(1)\quad \frac{\partial u_i}{\partial t} = \sum_{k=1}^{n} a_{ik} \Delta u_k \quad , \quad \Delta = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} \quad , \quad i = 1,2,\ldots,n$$

be given, where the a_{ik} are complex and constant. It is assumed that all roots of the equation $|A - \lambda E| = 0$, where $A = \| a_{ij} \|$, are different and $\mathrm{Re}\,\lambda > 0$. Let the domain D be bounded by the piecewise smooth closed curve C. It is sought a solution of (1) which satisfies the conditions

$$u_i(x,y,t)\big|_{t=0} = f_i(x,y)$$

and

$$u_i\big|_C = \varphi_i(s,t)$$

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The Mixed Boundary Value Problem for a Certain System of Parabolic Differential Equations

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or
$$\left(\frac{\partial u_i}{\partial n} + \sum_{k=1}^{n} \alpha_{ik}(s,t)u_k\right)\Big|_C = \varphi_i(s,t) ,$$

where the $f_i(x,y)$ possess bounded derivatives of first order in D, while the $\alpha_{ik}(s,t)$, $\varphi_i(s,t)$ are continuous in t and bounded and periodic in s (Period = length of C).
With the aid of certain auxiliary functions which are denoted as "potentials" of the system (1), the boundary value problem is reduced to a system of integral equations which can be solved by successive approximation.
There are 3 Soviet references.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina ; Kazakhskiy gosudarstvennyy universitet imeni A.A.Zhdanova (Khar'kov Polytechnical Institute imeni V.I.Lenin; Kazakh State University imeni A.A. Zhdanov)

PRESENTED: March 13,1959, by S.L. Sobolev, Academician

SUBMITTED: March 10, 1959

Card 2/2

KIM, YE.I.

"On the Conditions of a Solution of One Boundary Problem of Heat Conduction."

Report submitted for the Conference on Heat and Mass Transfer, Minsk, BSSR, June 1961.

KIM, YE. I. and IVANOVA L. P.

"Two-Dimensional Problme of Heat and Mass Transfer at the Processes of Drying."

Report submitted for the Conference on Heat and Mass Transfer, Minsk, BSSR, June 1961.

KIM, YE. I., BEYMUKHANOV, B. B.

"Boundary Problem Solutions of the Heat Conduction Equation With a Discontinuous Coefficient."

Report submitted for the Conference on Heat and Mass Transfer, Minsk, BSSR, June 1961.

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S/020/61/139/004/002/025
C111/C333

AUTHORS: Kim, Ye. I., Ivanova, L. P.

TITLE: Conditions for the solvability of a boundary value problem in the case of a certain parabolic

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 4, 1961, 795-798

TEXT: The authors consider the system

$$\frac{\partial u_i}{\partial t} + \sum_{k=1}^{2} a_{ik} \Delta u_k, \quad \Delta = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} \quad = 0, \qquad (1)$$

where a_{ik} are real constants, where the roots λ_1, λ_2 are assumed to be different from

$$\begin{vmatrix} a_{11} - \lambda & a_{12} \\ a_{21} & a_{22} - \lambda \end{vmatrix} = 0 \qquad (2)$$

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Conditions for the solvability ... S/0:0/6·/:39/004/002/025 C···/C333

and positive. Find a solution of (1) in the domain D(0 < x < 1, $-\infty < y < +\infty$) satisfying the conditions

$$u_1\Big|_{t=0} = 0 \qquad (3)$$

$$(\alpha_1 u_1 + \alpha_2 u_2)\Big|_{x=0} = \psi_1(y,t), \quad (\partial u_1/\partial x + h_1 u_1)\Big|_{x=0} = \psi_2(y,t)$$

$$(\beta_1 u_1 + \beta_2 u_2)\Big|_{x=1} = \psi_3(y,t), \quad (\partial u_2/\partial x + h_2 u_2)\Big|_{x=1} = \psi_4(y,t) \qquad (4)$$

where α_i, β_i, h_i are given constants $\psi_i(y,t)$ - functions which are given, continuous and bounded together with the derivatives of sufficiently high order $\psi_i(y,0) = 0$.

Let denote

$$\int_0^t d\tau \int_{-\infty}^{+\infty} G(x, y-\eta, t-\tau)\,\psi(\eta,\tau)\,d\eta = G * \psi\,[x,y,t]. \qquad (5)$$

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The solution is sought with the set up

$$
\begin{aligned}
u_1(x, y, t) &= \sum_{i,j=1}^{2} A_{1j}^{i} g_x^{j} * \omega_{1i}[x, y, t] + \sum_{i,j=1}^{2} A_{1j}^{i} g_x^{j} * \omega_{2i}[l-x, y, t], \\
u_2[x, y, t] &= \sum_{i,j=1}^{2} A_{2j}^{i} g_x^{j} * \omega_{1i}[x, y, t] + \sum_{i,j=1}^{2} A_{2j}^{i} g_x^{j} * \omega_{2i}[l-x, y, t],
\end{aligned} \tag{6}
$$

where

$$
g^{j}(x, y, t) = \frac{1}{2\pi t}\exp\left[-\frac{x^2+y^2}{4\lambda_j t}\right], \quad g_x^{j} = \frac{\partial}{\partial x} g^{j}, \quad g_0^{j} = g^{j}(0, y, t); \tag{7}
$$

$$
\begin{gathered}
A_{11}^{1} = \frac{\lambda_1 - a_{22}}{\lambda_1 - \lambda_2}, \quad A_{12}^{1} = \frac{a_{22} - \lambda_2}{\lambda_1 - \lambda_2}, \quad A_{11}^{2} = \frac{a_{12}}{\lambda_1 - \lambda_2}, \quad A_{12}^{2} = -\frac{a_{12}}{\lambda_1 - \lambda_2}, \\
A_{21}^{1} = \frac{a_{21}}{\lambda_1 - \lambda_2}, \quad A_{22}^{1} = -\frac{a_{21}}{\lambda_1 - \lambda_2}, \quad A_{21}^{2} = \frac{\lambda_1 - a_{11}}{\lambda_1 - \lambda_2}, \quad A_{22}^{2} = \frac{a_{11} - \lambda_2}{\lambda_1 - \lambda_2}, \\
\sum_{j=1}^{2} A_{ij}^{k} = \begin{cases} 0, & i \neq k, \\ 1, & i = k; \end{cases} \qquad \sum_{i=1}^{2} a_{si} A_{ij}^{k} = \lambda_j A_{sj}^{k}.
\end{gathered} \tag{8}
$$

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Conditions for the solvability ...

Lemma: If $\omega(y,t)$ possesses bounded derivatives $\partial\omega/\partial t$, $\partial^2\omega/\partial y^2$ and if $\omega(y,0) = 0$, then

$$\lim_{x\to 0} \int_0^t d\tau \int_{-\infty}^{+\infty} g_{xx}^{i}(x,y-\eta,t-\tau)\omega(\eta,\tau)d\eta = \frac{1}{\lambda_j} g^j * F_j[\omega][0,y,t], \qquad (9)$$

where $F_j[\omega] = \partial\omega/\partial\tau - \lambda_j \partial^2\omega/\partial\eta^2$.

In order to determine the functions $\omega_{ij}(y,t)$ the authors substitute (6) into (4), whereby a system of integrodifferential equations arises from which the relations

$$\sum_{j=1}^{2} (\alpha_2 A_{1j}^1 - \alpha_1 A_{1j}^2) \cdot \frac{1}{\lambda_j} g^i * F_j[\omega_{11}][0,y,t] = \alpha_2 h_1 \omega_{11}(y,t) -$$

$$- \sum_{i=1}^{2} K_1^i * \omega_{2i}[1,y,t] + \varphi_2(y,t) \qquad (14)$$

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Conditions for the solvability ...

follow, where

$$K_1^i(1,y-\eta,t-\tau) = \sum_{\nu,j=1}^{2} A_{1j}^2(\alpha_1 A_{1\nu}^i + \alpha_2 A_{2\nu}^i)\frac{1}{\lambda_j} F_j[g_x^\nu] * g^j[1,y-\eta,t-\tau] +$$

$$+\sum_{\nu,j=1}^{2} \alpha_2 A_{1j}^\nu g_{xx}^i(1,y-\eta,t-\tau) + h_1 \sum_{\nu,j=1}^{2} \alpha_2 A_{1j}^\nu g_x^j(1,y-\eta,t-\tau) \qquad (15)$$

$$\varphi_2(y,t) = \alpha_2 \psi_2 + \sum_{j=1}^{2} A_{1j}^2 \frac{1}{\lambda_j} g^j * F_j[\psi_1][0,y,t] \qquad (16)$$

and

$$\sum_{j=1}^{2}(\beta_2 A_{2j}^1 - \beta_1 A_{2j}^2)\frac{1}{\lambda_j} g^j * F_j[\omega_{22}][0,y,t] =$$

$$= -\beta_1 h_2 \omega_{22} + \sum_{i=1}^{2} K_2^i * \omega_{1i}[1,y,t] - \varphi_4(y,t) \qquad (17)$$

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where

$$K_2^l(l, y-\eta, t-\tau) = \sum_{\nu, l=1}^{2} A_{2l}^1(\beta_1 A_{1\nu}^l + \beta_2 A_{2\nu}^l)\frac{1}{\lambda_l}F_l[g_x^\nu] * g^l[l, y-\eta, t-\tau] +$$

$$+ \sum_{\nu, l=1}^{2} \beta_1 A_{2l}^\nu g_{xx}^l(l, y-\eta, t-\tau) + h_2 \sum_{\nu, l=1}^{2} \beta_1 A_{2l}^\nu g_x^l(l, y-\eta, t-\tau), \quad (18)$$

$$\varphi_n(y, t) = \beta_1 \varphi_4(y, t) + \sum_{l=1}^{2} A_{2l}^2 \frac{1}{\lambda_l} g^l * F_l[\psi_2][0, y, t]. \quad (19)$$

Instead of the equations (14) and (17) their characteristic equation

$$F[\omega] - A_1 \frac{1}{\lambda_1} g^1 * F_1[\omega][0,y,t] + A_2 \frac{1}{\lambda_2} g^2 * F_2[\omega][0,y,t] = f(y,t). \quad (20)$$

is considered. By the Fourier-Laplace transformation the authors obtain the result.

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Theorem: Let $A_1^2 \lambda_2 - A_2^2 \lambda_1 \neq 0$. If $A_1/A_2 < 0$, $(A_1 + A_2)/(A_1\sqrt{\lambda_2} + A_2\sqrt{\lambda_1}) < 0$, then (20) possesses no solution. In other cases (20) is always solvable and the function

$$\omega(y,t) = F^{-1}[f] = \int_0^t d\tau \int_{-\infty}^{+\infty} \Gamma(0, y-\eta, t-\tau) f(\eta, \tau) d\eta = \Gamma * f[0, y, t] \quad (25)$$

satisfies (20) if $f(y,t)$ has continuous bounded derivatives of second order with respect to y and of first order with respect to t. $\Gamma(0, y, t)$ is denoted as resolvent. If $\Gamma_1(0, y, t)$ and $\Gamma_2(0, y, t)$ are resolvents of the equations (14) and (17), then by applying the inverse operator Γ^{-1} it follows:

$$\omega_{11} - \alpha_2 h_1 \Gamma_1 * \omega_{11}[0, y, t] - \sum_{i=1}^{n} K_i * \Gamma_1 * \omega_{1i}[0, y, t] = \Gamma * \varphi_1[0, y, t] \quad (12)$$

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$$\omega_{22} \cdot \beta_2 h \Gamma_2 * \omega_{22}[0, y, t] + \sum K_2 * \Gamma_2 * \omega [\ldots, y, \ldots] + \Gamma_2 * \ldots [0, y, \ldots]$$ (21)

If now ω_{11}, ω_{22} in the aforementioned system of integrodifferential equations are replaced by (19), (21), then together with (14), (17) one obtains a system which is solvable by successive approximations. The case $A_1^2 \lambda_2 - A_2^2 \lambda_1 = 0$ is denoted as singular and is not considered There are 2 Soviet-bloc references.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut imeni V. I. Lenina (Khar'kov Polytechnic Institute imeni V. I. Lenin) Kazakhskiy gosudarstvennyy universitet imeni S. M. Kirova (Kazakh State University imeni S. M. Kirov)

PRESENTED: March 21, 1961, by I. N. Vekua, Academician

SUBMITTED: March 20, 1961

Card 8/8

28667
S/020/61/140/002/012/023
B104/B102

24.5200

AUTHORS: Kim, Ye. I., and Baymukhanov, B. B.

TITLE: Temperature distribution in a piecewise homogeneous semi-infinite plate

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 2, 1961, 333-336

TEXT: The authors obtain a function $u(x,y,t)$ continuous in the region $D(x \geq 0;\ -\infty < y < +\infty;\ 0 \leq t \leq t_0)$ and satisfying the equation $\partial u/\partial t = a^2(y)(\partial^2 u/\partial x^2 + \partial^2 u/\partial y^2)$ $(x > 0,\ y \neq 0,\ 0 < t < t_0)$. Here, $a^2(y) = a_1^2$ for $y < 0$, and $a^2(y) = a_2^2$ for $y > 0$. The initial condition reads: $u(x,y,t)|_{t=0} = f(x,y)$; the boundary condition: $u(x,y,t)|_{x=0} = \psi(y,t)$. Furthermore, $u(x,-0,t) = u(x,+0,t)$: $k_1 \partial u(x,-0,t)/\partial y = k_2 \partial u(x,-0,t)/\partial y$, where k_1 and k_2 are positive constants. The solution is found in a class of functions which satisfy the inequality $\max\limits_{0 \leq t \leq t_0} |u(x,y,t)| < M_0 e^{\delta^2 r^2}$,

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where M_0 and δ are constants; $r = \sqrt{x^2 + y^2}$, and t_0 is a constant satisfying the inequality $0 < t_0 < 1/4a_0^2\delta^2$, $a_0 = \max(a_1, a_2)$. The solution of the problem is obtained in the form

$$
\begin{aligned}
y < 0: \quad u(x, y, t) = &\int_0^t d\tau \int_{-\infty}^{+\infty} \frac{x\varphi(\eta, \tau)}{4\pi a_1^2 (t-\tau)^2} \exp\left[-\frac{x^2 + (y-\eta)^2}{4a_1^2 (t-\tau)}\right] d\eta + \\
&+ \int_0^t d\tau \int_{-\infty}^{+\infty} \frac{\psi_1(\xi, \tau)}{2\pi (t-\tau)} \exp\left[-\frac{(x-\xi)^2 + y^2}{4a_1^2 (t-\tau)}\right] d\xi + \\
&+ \int_{-\infty}^{+\infty} d\xi \int_{-\infty}^{+\infty} \frac{f_0(\xi, \eta)}{4\pi a_1^2 t} \exp\left[-\frac{(x-\xi)^2 + (y-\eta)^2}{4a_1^2 t}\right] d\eta;
\end{aligned}
\qquad (13)
$$

X

for $y < 0$, and

$$y > 0: \quad u(x, y, t) = \int_0^t d\tau \int_{-\infty}^{+\infty} \frac{x\varphi(\eta, \tau)}{4\pi a_2^2 (t-\tau)^2} \exp\left[-\frac{x^2 + (y-\eta)^2}{4a_2^2(t-\tau)}\right] d\eta + \tag{14}$$

$$+ \int_0^t d\tau \int_{-\infty}^{+\infty} \frac{y\psi_2(\xi, \tau)}{4\pi a_2^2 (t-\tau)^2} \exp\left[-\frac{(x-\xi)^2 + y^2}{4a_2^2(t-\tau)}\right] d\xi +$$

$$+ \int_{-\infty}^{+\infty} d\xi \int_{-\infty}^{+\infty} \frac{f_2(\xi, \eta)}{4\pi a_2^2 t} \exp\left[-\frac{(x-\xi)^2 + (y-\eta)^2}{4a_2^2 t}\right] d\eta,$$

for $y > 0$. There are 2 Soviet references.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut im. V. I. Lenina (Khar'kov Polytechnic Institute imeni V. I. Lenin) Kazakhskiy pedagogicheskiy institut im. Abaya (Kazakh Pedagogical Institute imeni Abay)

PRESENTED: May 4, 1961, by I. M. Vinogradov, Academician

SUBMITTED: May 4, 1961

28727
S/020/61/140/003/006/020
B104/B125

26.5100

AUTHOR: Kim, Ye. I.

TITLE: Conditions for the solution of a boundary problem of the heat-conduction equation

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 3, 1961, 553 - 556

TEXT: A solution u(x,y,t) of the heat-conduction equation

$$\frac{\partial u}{\partial t} = a^2\left(\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2}\right)$$ is sought for the region D $\left(0 < x < \infty, \ -\infty < y < +\infty, \ 0 < t < T_0\right)$.

The initial condition reads: $u(x,y,0) = 0$, and the boundary condition is

$$\sum_{k=0}^{m}\sum_{j=0}^{k} a_{kj}\frac{\partial^k u}{\partial x^j \partial y^{k-j}}\Bigg|_{x=0} = f(y,t),$$ where a_{kj} are constant quantities, and

$f(y,t)$ is a known function. This function and its derivative with respect to y satisfy the inequalities $|f(y,t)|$, $|f'_y(y,t)| < M \exp(\delta^2 y^2)$. The

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solution $u(x,y,t)$ and its 1^{st} to m-th derivatives with respect to x and y are required to be continuous in the region D. In this case,

$$\left|\frac{\partial^k u}{\partial x^j \partial y^{k-j}}\right| \leqslant M_1 \exp(\delta^2 r^2) \quad (j = 0, 1, \ldots, k; \quad k = 0, 1, \ldots, m), \text{ where}$$

$r = \sqrt{x^2 + y^2}$; M, M_1, and δ^2 are constants. The constant T_o satisfies the condition $T_o < 1/4a^2\delta^2$. It is shown that the problem concerned, unlike the one-dimensional problem (A. N. Tikhonov, Matem. sborn., 26 (68), 1 (1950)), does not always have solutions. Conditions under which the problem has solutions are indicated. There are 3 Soviet references.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut im. V. I. Lenina (Khar'kov Polytechnical Institute imeni V. I. Lenin)

PRESENTED: May 4, 1961, by I. M. Vinogradov, Academician

SUBMITTED: May 4, 1961

Card 2/2

L 50338-65 EWT(d) Pg-4 IJP(c)

ACCESSION NR: AP5013261 UR/0361/65/000/001/0019/0029

14
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AUTHORS: [illegible]; Ni, V. Kh.

TITLE: Solution of a system of parabolic differential equations when the characteristic equation has multiple roots

SOURCE: AN KazSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 1, 1965, 19-29

TOPIC TAGS: differential equation

ABSTRACT: The author treats three problems when the characteristic equation

$$|A - \lambda E| = 0, \quad A = \|a_{ij}\| \quad (i, j = 1, 2, \ldots, n) \qquad (1)$$

has multiple roots $\lambda_1, \ldots, \lambda_l$ with multiplicities $r_1, \ldots, r_l$, $\sum r_i = n$. A typical one is: Find a bounded solution of

$$\frac{\partial U_i}{\partial t} = \sum_{j=1}^{n} a_{ij}\left(\frac{\partial^2 U_j}{\partial x^2} + \frac{\partial^2 U_j}{\partial y^2}\right) \quad (i = 1, 2, \ldots, n) \qquad (2)$$

in the region R satisfying the initial condition

$$U_i(x, y, t)|_{t=0} = f_i(x, y) \quad (i = 1, 2, \ldots, n) \qquad (3)$$

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and the boundary condition

$$\left.\frac{\partial U_i(x, y, t)}{\partial x}\right|_{x=0} = 0 \quad (i = 1, 2, \ldots, n), \qquad (4)$$

where $f_i(x,y)$ are bounded, continuous functions on the region D ($x \geq 0$, $-\infty < y < \infty$). The solution is sought in the form

$$U_j^{(1)}(x, y, t) =$$

$$= \sum \sum \sum (-1)^{\ldots} C_{\ldots} \int\limits^{+\infty} d\ldots \int\limits^{+\infty} \frac{F_i(\xi, \eta) [(x-\xi)^2 + (y-\eta)^2]^{\ldots}}{\ldots} \exp\left[-\frac{(x-\xi)^2 + (y-\eta)^2}{4\ldots}\right] d\eta, \qquad (5)$$

$$\text{where } s_k = \sum (\ldots) \neq 0 \quad (i = 1, 2, \ldots, n);$$

$$F_i(\xi, \eta) = \begin{cases} f_i(\xi, \eta), & x > 0 \\ f_i(-\xi, \eta), & x < 0 \end{cases} \quad (i = 1, 2, \ldots, n). \qquad (6)$$

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L 20138-65

ACCESSION NR: AP5013261

Orig. art. has: 12 formulas.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: MA

NO REF SOV: 004 OTHER: 000

Card 3/3

KIM, Ye.I.

Heat propagation in piecewise homogeneous media in n-dimensional space. Izv. AN Kazakh. SSR. Ser. fiz.-mat. nauk 3 no. 3:3-16 S-D '65. (MIRA 18:12)

ZHAUTYKOV, O.A., akademik, otv. red.; AMANDOSOV, A.'., red.; YERZHANOV, Zh.S., doktor tekhn. nauk, red.; KIM, Ye.I., red.; PERSIDSKIY, K.P., akademik, red.; SHEVCHUK, T.I., red.

[Studies on differential equations and their application] Issledovaniia po differentsial'nym uravneniiam i ikh primeneniiu. Alma-Ata, Nauka, 1965, 1965. 199 p. (MIRA 18:8)

1. Akademiya nauk Kazakhskoy SSR, Alma-Ata. Sektor matematiki i mekhaniki. 2. Chlen-korrespondent AN Kaz.SSR (for Kim). 3. AN Kaz.SSR (for Zhautykov, Persidskiy).

KIM, Ye.I.; OMEL'CHENKO, V.T.; KHARIN, S.N.

Solution of the equation of heat conductivity with a discontinued coefficient and its application to the problem of electric contacts. Inzh.-fiz. zhur. 8 no.6:761-767 Je '65. (MIRA 18:7)

1. Politekhnicheskiy institut imeni Lenina, Khar'kov.

ACC NR: AT6019246 SOURCE CODE: UR/0000/65/000/000/0099/0101

AUTHOR: Kim, Ye. I.; Omel'chenko, V. T.

ORG: none

TITLE: A problem of heat conductivity with moving boundaries

SOURCE: Kazakhstanskaya mezhvuzovskaya nauchnaya konferentsiya po matematike i mekhanike. 1st, Alma-Ata, 1963. Trudy, Izd-vo Nauka KazSSR, 1965, 99-101

TOPIC TAGS: heat conductivity, approximate solution

ABSTRACT: A study is made of the heating time in a cylindrical metallic bridge with moving boundaries under conditions of a constant electric current passing across it with the object of finding ways of decreasing the time of heating in order to prevent fusing. The equation considered is

$$b(t) = \frac{b_1}{(l_0 + c_0 t)^6}, \text{ a } b_1 = \frac{V_k^2}{c\gamma\pi^2\beta^4\rho_0^2},$$

where b is a constant and V_k is the contact potential for which an approximate solution is given. If the motion of the boundary is given by $x_2(t) = Dt^n$, it is asserted that the heating time will be at a minimum when $n = 2$. Orig. art. has: 19 formulas

SUB CODE: 12/ SUBM DATE: 18Nov65

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VAL'SHTEYN, G.I.; NARUSEVICH, V.S.; KIM, Ye.P.

Supports for short duration seam workings. Nauch. trudy KNIUI no.14:284-286 '64. (MIRA 18:4)

KIM, Yu.Kh.; LUK'YANOV, I.A.; YAZYDZHAN, I.N., sadovod; SUL'MENEVA, Ye.M., starshiy tekhnik; ZHIL'TSOV, MI.I, starshiy master; KUZNETSOVA, P.G., inzh.-tekhnolog; ANISKOV, A.T., pirometrist; BELYAKOV, I.P., kalil'shchik; NAUMOV, M.D., kalil'shchik

Let us create winter gardens in industrial plants with high temperatures. Zdorov'e 6 no.10:32 0 '60. (MIRA 13:9)

1. Moskovskiy zavod shlifoval'nykh stankov. 2. Glavnyy metallurg Moskovskogo zavoda shlifoval'nykh stankov (for Kim). 3. Zaveduyushchiy zdravpunktom Moskovskogo zavoda shlifoval'nykh stankov (for Luk'yanov).
(GREENHOUSES)

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16(1)

AUTHOR: Kim, Yu. Ts. SOV/140-59-3-7/22

TITLE: On a Method for the Solution of the Boundary Value Problem for the Polyharmonic Equation

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1959, Nr 3, pp 65-73 (USSR)

ABSTRACT: The method used by D.I.Sherman [Ref 3] for the solution of problems of elasticity is used by the author for the determination of a function u which in the domain S satisfies the equation $\Delta^n u = 0$ and is regular, and on the boundary it satisfies the conditions $u = F_1(s)$, $\frac{\partial u}{\partial n} = F_2(s)$, $\Delta u = F_3(s), \ldots$ etc. The calculation is made for the case $n = 3$. By the arrangement

$$u = \frac{1}{2}\left\{\bar{z}^2\varphi_1(z)+z^2\overline{\varphi_1(z)}+\bar{z}\varphi_2(z)+z\overline{\varphi_1(z)}+\varphi_3(z)+\overline{\varphi_3(z)}\right\}$$

and a mixed series - and integral - arrangement for the arbitrary

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